

Soil seedbank of the Muda Rice Granary in Northwest Peninsular Malaysia invaded by the Weed *Fimbristylis miliacea* (L.) Vahl

ABSTRACT

The experiment was conducted in the glasshouse at Universiti Putra Malaysia from March 2003 to June 2004 to determine the soil seedbank of *Fimbristylis miliacea* in the rice fields of the Muda rice granary in Peninsular Malaysia. Six soil cores of 5 cm in diameter and 10 cm depth were sampled from each of 24 fields. All samples from each individual field were bulked and placed in plastic trays of 38 25 10 cm. Soil was moistened as required and emergence of weed seedlings was recorded over a period of one year. After one year, remaining seeds were separated, removed and identified. The total seed bank was estimated at 1136.48 million m⁻² including 20 taxa. Based on per cent composition the five most dominant species in terms of seed reserves were *F. miliacea*, *Leptochloa chinensis*, *Ludwigia hyssopifolia*, *Cyperus difformis* and *Cyperus iria*. *Fimbristylis miliacea* exhibited a very abundant 750.84 million seeds ha⁻¹, 66.07% of the total seed reserve, of which 411.48 million seedlings ha⁻¹ (55%) emerged in soil trays, 61.59 million seedlings ha⁻¹ (8%) in Petri dishes and the remaining 277.77 million seeds ha⁻¹ (37%) were dormant or dead. *Fimbristylis miliacea* seedling emergence was highest in the first observation in April 2003 and seedling emergence showed no clear peaks. The study suggests a large persistent seedbank of *F. miliacea* in Muda rice fields.

Keyword: Soil seedbank; Rice granary; Malaysia; *Fimbristylis Miliaceae* (L.) Vahl